VLTG-800

VIDEO LINE TEST GENERATOR

INSTRUCTION BOOK
IB-6357-01

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SHIPPING INSPECTION

Remove unit from the shipping container and inspect for shipping damage. If damage has occurred during shipping, report that damage to the shipping company immediately. The VLTG-800 is housed in a rugged die-cast aluminum enclosure. Included in the packaging will be an external power module and this instruction book.

HOW AND WHERE TO USE THE VLTG-800

The VLTG-800 Test Generator can be used at any point in the video system to perform video line definition tests. The standard test procedure is outlined below. Other procedures can be used as required.

PROCEDURE FOR CCTV SYSTEM ANALYSIS

Step by Step system analysis can be done by using this procedure.

1. Connect the VLTG-800 to the Monitor and record the maximum "line definition" the monitor is capable of reproducing. This is a vital step in the "Proof of Performance Testing" and should always be done first.

2. Then connect the VLTG-800 at the camera location and confirm that the "line definition has not been degraded by the cable or twisted pair run. If the "line definition is significantly degraded, then install a cable equalizer (GB-60) or equivalent to restore the video signal to full line delivery. Non-Equalized cable or twisted pair runs are the main causes of video line degradation.

3. Next connect the VLTG-800 to the video recorders monitor output and confirm that the play-back signal is the same line definition as the live viewed signal. If the definition of the play-back video is not as good as the live viewed video signal, then the video recorder may need service or the tape should be replaced. With a DVR (Digital Video Recorder) the procedure is the same. Some DVR's have built in monitors. When they do, make sure to measure the monitor before making recording and (play-back) measurements.

HOW TO CABLE THE VLTG-800

Connect the video output of the VLTG-800 to any BNC video cable going to the equipment to be measured. At the camera end of the system disconnect the BNC cable and connect it to the video output BNC of the VLTG-800. Use the power cube supplied with the unit to power the VLTG-800. When the power is applied a green LED on the front panel will turn on.

HOW TO CABLE THE VLTG-800 (cont)

The second BNC output connector on the VLTG-800 is a separate video generator output that can be used for any purpose. It can also be used to support the unit when used in hard to reach areas such as camera's mounted on a pole. A short BNC cable can be used to "hang" the unit on the camera during use. Connect a BNC cable from the second video output of the VLTG-800 and connect the other end of the cable to the camera in the field, so that the unit hangs from the camera by the short BNC cable. The unit is light weight and will hang on the cable easily.

POWER SUPPLY INSTALLATION

Plug the power module into a suitable 120 VAC power plug. Then take the low voltage power plug and insert it into the rear power connector marked "24 VDC". At this time the green "VIDEO ON" L.E.D. located at the front of the unit should be on.

It is possible to use the camera's existing power supply to power the unit. The unit will operate with power from 12-24 Volts AC or DC. The polarity is automatically routed inside the device to prevent reverse polarity from occurring. Simply attach the special power adaptor to the camera's power supply using the alligator clips, and plug the other end into the power socket on the VLTG-800. The BNC cable on the special power adaptor will support the unit.

SET-UP OF THE VLTG-800

There are no adjustments or controls that have to be set at installation. The VLTG-800 will now output the video test pattern required to test for Video Line Definition Delivery.

OPERATION

The VLTG-800 Video Line Test Generator creates a standard NTSC video signal that can be observed on a Monitor to display a series of vertical lines that defines the maximum number of "lines of definition" that the CCTV system is capable of displaying. The Generator creates eight groups of lines, ranging from 100 to 800 lines. By observing which groups of lines are crisp and clear and which groups are blurred and indistinguishable, the maximum number of "Lines of Definition" may be easily determined. The VLTG-800 test generator can be used to establish overall CCTV system quality level as well as to identify components or sections of the system that do not meet system objectives.

PRECISION CCTV SYSTEM ALIGNMENT

When the VLTG-800 is used together with the CM-1 Camera Master a very accurate system alignment can be obtained using Equalizer / Amplifier Senders and Receivers to flatten the frequency response of the coaxial cable or twisted pair wires connecting the camera to the monitor location.

The CM-1 Camera Master can measure both the low and high frequency loss of the transmission facility. The Sync Pulse amplitude measures the low frequencies while the Color Burst measures the high frequencies. The LEVEL control of the Equalizer/Amplifier is used to set the Sync Pulse to 40 I.R.E. Units while the Definition control of the Equalizer/Amplifier is used to set the Color Burst to 40 I.R.E. Units. When both controls are set to 40/40 Units the system is equalized to the best possible picture transmission quality.

The ability of a Monitor to display fine picture detail can be measured by connecting the VLTG-800 directly to a terminated Monitor while observing the highest number of lines that are clearly observable. This will establish the finest detail that a particular Monitor can display. A higher quality Monitor must be employed if higher picture quality is required.

The ability of a Recorder to reproduce picture detail can be measured by recording the VLTG-800 signal and playing it back into the Monitor while noting any loss of "lines" compared to direct connections to the Monitor. In overall system tests, any part of the system may be "swapped-out" or by-passed to identify degraded or defective components.

When the CCTV system has been equalized to the best possible transmission, the highest number of "lines of definition" measured at the Monitor will also indicate the highest number of "lines of definition" that any camera can deliver to the Monitor. A Camera with higher "lines of definition" will not improve the picture quality if the Monitor cannot reproduce the increased "lines of definition". By measuring the capability of each part of the CCTV system you can properly match the equipment to produce the highest Picture Definition for your money. When a customer asks for improved picture quality on an existing system, you can determine which part of the system is limiting the picture definition and replace only that equipment.

The Generator is in a fully RF shielded metal enclosure, allowing operation in the vicinity of potential sources of RF interference. No adjustments of any kind are required at any time. A "VIDEO ON" indicator shows that a video signal is present at the output to identify signal continuity.

HOW TO READ AND INTERPRET LINE DEFINITION

Looking at a black and white (Monochrome) or color monitor with the VLTG-800 pattern will allow you to measure and evaluate the video line definition. The test pattern displayed by the VLTG-800 indicates the line resolution capability of the video system. It also can display other information that is less obvious. This section will help explain the pattern observations and their meaning.

First let us examine what line definition is. All CCTV camera's and monitors have a vertical line resolution of 525 lines from the top of the screen to the bottom of the screen. When camera and monitor manufacturers refer to line resolution they mean horizontal lines. That is the number of lines of resolution from the left side of the screen to the right side of the screen. Horizontal Line Resolution is measured as "Line Pairs", a Line Pair consists of one black and one white line side by side. One line pair counts as two lines.

The VLTG-800 generates repeating Lines in steps from 100 Lines to 800 Lines. To determine the Line Definition look for the Line Pair pattern that is clear and sharp at the division from black to white. All the patterns will be visible to the eye but some will be fuzzy or gray in appearance. The gray indicates loss of picture detail and Line Resolution. Look for the highest numbered pattern that is clearly black and white with no gray in the black or white area, this is the highest Line Resolution that your system can deliver.

It is possible to determine Line Resolution in between the steps on the display by observing the pattern just beyond the last clear pattern and viewing the degree to which the pattern is degraded. If it is about half way between the 300 Line and 400 Line pattern, then it is a 350 Line Resolution. Other determinations can be made in the same way.

The VLTG-800 will allow you to see other characteristics about color monitors. For example you will notice that the black portions of the Line Pairs show an increasing graying of image as the Line Pairs get closer together, this is caused by luminance or (picture area) frequency response roll-off. Roll-off of the high frequency response is a measure of the monitor's quality, its ability to reproduce high frequency full level video.

Some color monitors have a filter internal to the circuitry that reduces the amplitude of Luminance (White Picture level) at 3.58 MHz the color burst frequency. The band-width of this filter can vary greatly from monitor to monitor. If the band-width is wide on a particular monitor the "400" Line pattern may look darker than the "500" Line pattern. This is acceptable in a color monitor but it should be noted that better color monitors will not exhibit this effect. Also this effect will not occur on Monochrome (black and white) monitors.

BLACK AND WHITE VERSES COLOR CAMERAS

Many installers select color cameras because they feel that black and white or monochrome cameras have inferior resolution, However that is not a correct assumption. Monochrome cameras may actually have higher resolution, increased light sensitivity, better signal to noise ratio, and greater contrast that similarly priced color cameras.

CARE AND MAINTENANCE OF THE VIDEO MASTER

Care should be taken not to subject the VLTG-800 to extreme moisture or temperatures outside normal operating range. There are no periodic maintenance adjustments to be made on the VLTG-800. If the unit does not function properly it should be returned to the factory for repair. The FM SYSTEMS, INC. telephone number is located on the equipment.

SPECIFICATIONS

OUTPUT	SPECIFICATION
Video Format	NTSC / CCTV B/W and Color
Output Impedance	75 Ohm
Sync Level	40 I.R.E. +/- 0.5 I.R.E. Unit
Luminance Level	100 I.R.E. +/- 0.5 I.R.E. Unit
Color Burst Level	40 I.R.E. +/- 0.5 I.R.E. Unit
Video Pattern	100 - 800 Vertical Lines
Pattern Steps	100 Line Increments
Video Connectors	2 BNC Female (Dual Output)
Power On Indicator	Green L.E.D.
MECHANICAL	
Power Requirement	12 - 24 Volts DC/AC
Current	55 mA (@ 24 VDC)
Power Supply	24 VDC Power Cube (supplied) or Existing Camera Power
Size	6.5" X 3.25" X 2"
Enclosure	Die-cast Aluminum